

Claim Amendments

1. (original) An apparatus for retrieving an object from within a well, wherein the object has an object opening for receiving the apparatus, the apparatus comprising:

a support rod having a first end and a second end; and

an expandable sleeve having a plurality of external ridges thereon slidably disposed about the support rod, the expandable sleeve being movable from an insertion position wherein the expandable sleeve may be inserted into the object opening to an engaging position wherein the external ridges grippingly engage the object.
2. (original) The apparatus of claim 1 wherein the plurality of external ridges is defined by a thread and wherein the object opening has an internal thread.
3. (original) The apparatus of claim 1 wherein the support rod comprises a variable outer diameter.
4. (original) The apparatus of claim 1 wherein the expandable sleeve contracts around the support rod.
5. (currently amended) The apparatus of claim 1, the support rod comprising a tapered insertion tip at the first end of the support rod, wherein the insertion tip tapers radially inwardly from ~~[[it]]~~ its greatest diameter, the greatest diameter of the insertion tip being slightly less than the diameter of the object opening so that the tapered insertion tip is insertable into the object opening.

6. (original) The apparatus of claim 5, the support rod comprising a stem extending from the insertion tip, the stem comprising a tapered portion adjacent the insertion tip, wherein the tapered portion tapers radially inwardly from adjacent the insertion tip.

7. (original) The apparatus of claim 6 wherein in the insertion position the expandable sleeve is disposed about a narrow section of the stem.

8. (original) The apparatus of claim 1 wherein the expandable sleeve comprises one or more longitudinal slits extending along at least a portion of a length thereof to permit the expandable sleeve to move radially, and wherein application of an inwardly directed radial force causes the expandable sleeve to contract radially around the support rod.

9. (original) The apparatus of claim 8 further comprising one or more O-rings circumscribing the expandable sleeve for providing the inwardly directed radial force.

10. (original) The apparatus of claim 1 wherein the expandable sleeve comprises three longitudinal slits extending along an entire length thereof and equally spaced around the sleeve circumference.

11. (original) The apparatus of claim 1 further comprising a biasing means for biasing the expandable sleeve to the engaging position.

12. (original) The apparatus of claim 11 wherein the biasing means comprises a spring for urging the expandable sleeve toward the engaging position.

13. (original) The apparatus of claim 12 further comprising a collar slidably mounted on the support rod, a portion of the collar being disposed about a portion of the expandable sleeve.

14. (original) The apparatus of claim 13 wherein an end of the spring abuts the collar.

15. (original) The apparatus of claim 1 wherein the second end of the support rod is adapted to be connected to a cable for lowering and raising the apparatus within the well.

16. (original) The apparatus of claim 1 wherein the second end of the support rod is adapted to be connected to a bumper jar for impacting the apparatus in a downward direction to facilitate insertion of the expandable sleeve into the object opening.

17. (original) The apparatus of claim 1 wherein the well is a water well and the object is a check valve.

18. (original) An apparatus for retrieving an object from within a well, wherein the object has an object opening for receiving the apparatus, the apparatus comprising:

a support rod having a first end and a second end; and

an expandable sleeve slidably disposed about the support rod, wherein the expandable sleeve comprises a plurality of longitudinal slits extending along an entire length thereof to define a plurality of completely separable expandable sleeve segments, and one or more resilient rings circumscribing the expandable sleeve to cause the expandable sleeve to contract radially around the support rod, the expandable sleeve being movable from an insertion position wherein the expandable sleeve may be inserted into the object opening to an engaging position wherein the expandable sleeve grippingly engages the object opening.

19. (original) The apparatus of claim 18 wherein the support rod comprises:
a tapered insertion tip; and
a stem extending from the tapered insertion tip, the stem having a tapered portion
and a generally cylindrical portion wherein in the expanded position the expandable sleeve is
disposed about the tapered portion.

20. (original) The apparatus of claim 18, wherein at least a portion of the expandable
sleeve sections have a plurality of ridges thereon for grippingly engaging the object opening.

21. (original) The apparatus of claim 20, wherein each of the expandable sleeve
sections has a plurality of ridges thereon.

22. (original) The apparatus of claim 21, wherein the ridges are defined by an
externally threaded portion of the expandable sleeve section.

23. (original) The apparatus of claim 18, wherein the object displaces the expandable
sleeve to the insertion position as the insertion tip is inserted into the object opening.

24. (original) The apparatus of claim 18, wherein the object opening has an internal
thread, and wherein the expandable sleeve is externally threaded.

25. (original) The apparatus of claim 24, wherein the object comprises a check valve
in a water well.

26. (original) Apparatus for retrieving an object from a well, the object having an
object opening for receiving the apparatus, the apparatus comprising:

a support rod having first and second ends;

an expandable sleeve disposed about the support rod for grippingly engaging the object, the expandable sleeve comprising a plurality of discrete expandable sleeve sections;

at least one resilient ring disposed about the expandable sleeve for applying a radially inwardly directed force to the expandable sleeve, the expandable sleeve having a plurality of circumferential ridges thereon, the expandable sleeve being movable between an insertion position wherein the sleeve may be inserted in the object opening, and an expanded, engaging position wherein the ridges grippingly engage threads defined in the object opening.

27. (original) A method for retrieving an object from a well bore with a fishing tool, wherein the object has an object opening for receiving the fishing tool, and wherein the fishing tool comprises a support rod having an insertion tip, and an expandable sleeve slidably disposed about the support rod having a plurality of external ridges thereon for grippingly engaging the object, the method comprising the steps of:

lowering the fishing tool into the well bore to the object;

inserting the insertion tip into the object opening;

displacing the expandable sleeve to an insertion position on the support rod;

inserting at least a portion of the expandable sleeve into the object opening;

moving the expandable sleeve to the engaging position on the support rod to grippingly engage the object; and

raising the tool and object from the well bore.

28. (original) The method of claim 27, the fishing tool further comprising a spring disposed about the support rod, the moving step comprising:

lifting the support rod in the well after inserting the expandable sleeve into the object opening; and

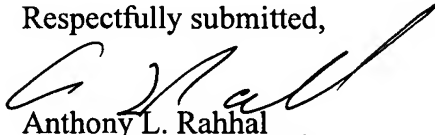
urging the expandable sleeve to the engaging position with the spring.

29. (original) The method of claim 27 wherein said well bore is a water well bore and said object is a check valve.

Comments

This amendment is being submitted to correct a typographical error in claim 5.

Respectfully submitted,



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